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ABSTRACT

Seven memory strategies that can be taught to college students with learning disabilities or students who have not learned essential study skills are described: the method of loci, pegwords, keywords, rote rehearsal, chaining, clustering, and first letter mnemonics. To help college faculty provide direct instruction in the memory strategies, the introductory section presents an activity to facilitate the examination of their own memory strategies. Faculty could provide examples of memory strategies to help students memorize essential information in specific courses. It is suggested that a class period devoted to "how to learn" what is presented may be a new focus for college instructors in order to increase retention. (SW)

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Memory Strategies for College Students

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Memory Strategies for College Students

Not all college students are aware of the various memory strategies that will add to their success in college. This presentation focused on involving college professors in direct instruction in seven memory strategies that have been proven successful. The presentation began with an activity to help the participants self-examine their own memory strategies. The following memory strategies were subsequently described:the method of loci, pegwords, keywords, rote rehearsal, chaining, clustering and first letter mnemonics.

MEMORY STRATEGIES FOR COLLEGE STUDENTS

We often assume that if students can get into college they have mastered some of the basic memory strategies that make them efficient learners. In my experiences with college students, I have found that there are great differences among college students in their choices of memory strategies. This reflects for some their learning styles and preferences. Various strategies are applied because they are specific to certain types of information that must be recalled. How does one retrieve information that is memorized? How do you encode it or learn it so that you can retrieve various factual information? Why do we forget so much of what we learn? Can college students be trained to bring to a conscious level their memory strategies so that they may use them more efficiently? These are some of the questions that will be answered in my presentation on memory strategies for college students.

Too often we assume as college professors that we do not have a responsibility to teach some of the basic content that in Bloom's taxonomy would be called "knowledge". There are, however, basic factual sets of information that must be acquired prior to our development of the ability to analyze, synthesize, or apply the information in an efficient manner. I have communicated

with a number of professors across our University campus to come up with lists of basic information that must be learned and remembered in a variety of subject areas. Today you will have an opportunity to demonstrate your own memory strategies. You may find, as I have, that I never thought about a lot of strategies that I use. They were on an unconscious level.

I will hand out papers to each of you. The first thing I want you to do is to memorize the items that are displayed here. They are all common objects. I will give you a few minutes to study them. When the time is up, put down all of the items on your paper. When you finish, write down everything you did to memorize the box contents.

Now we will look at various lists of words representing things you would have to memorize in various common core classes one would take at the University. You are to look at them for three minutes. When I tell you to, you are to again put them on the paper and then write how you remembered. Now, let's discuss how you remembered each of these.

This time, I will read another list for you. You are to listen carefully as you will not see it in print. I will read it twice. Now you are again to put the words on the paper that you remember and write down how you remembered them.

For this last set of words you will read and write

the following list one time. When you finish, turn over the paper and write down the words you remember.

How did you remember the items you saw? (Leave time for responses from participants on how they remembered each list of items.) You will note that there is little consistency in how you remembered. (Point out some activities that were observed that were outwardly visible that the participants did not share such as closing their eyes and counting on their fingers.)

The activities you have described can be classified as either visual or verbal memory strategies. One key idea to teach students is that if the material to be memorized is verbal, use a visual memory strategy. If the material is visual in nature, you should verbalize it.

Following are description of various memory strategies that have been found to be effective. They include the visual methods of loci, pegwords, and keywords. The verbal methods to be described include rote rehearsal, chaining, clustering, and first letter mnemonics.

VISUAL IMAGERY

Research has shown that there are a variety of strategies that help us memorize so that we can retrieve readily what has been learned. In my field of special education, great emphasis has been placed on this skill in an attempt to assist individuals with learning disabilities maximize their ability to memorize and

retrieve information (Gfeller, 1986; Miller & Brocklin, 1986; Mastropieri, Scruggs, Levin, 1986). One general category of such memory strategies is imagery. Imagery can include the process or method of loci or the use of a keyword or pegword method. This procedure dates back to before Christ in the literature.

Method of Loci

In the writings of the Ramon Cicero in 106-43 B. C. he talked about a memory strategy called the method of loci in which we remember things by recreating an image of the places in which items are located to prompt the retrieval of these items. As was the rhetoric of the time, he related a story to demonstrate the principal (Adams, 1976). He told of a group of people dining at the home of a nobleman. A man was called outside to talk to someone and while outside the roof of the great hall fell in killing the rest of the guests. Because the bodies were so mutilated they could not identify them. The man outside, however, retained a visual image of where they were sitting at the table and used this information to identify the bodies prior to their removal from their places at the table. Cicero used this event to devise one of the first recorded memory strategies or techniques.

Cicero goes on to say that "the most complete

pictures are formed in our minds of the things that have been conveyed to them and imprinted on them by the senses but that the keenest of all our senses is the sense of sight..."(Adams, 1976, p. 275) He went on to say that what we have seen with our eyes can be most readily retained. Now known as the method of Loci, this procedure involves retrieval by mentally moving through the locations to prompt the images of the objects stored there.

If I asked you to tell me how many doors there were throughout your house, you would probably invoke a form of loci. You would envision various rooms in your home in an attempt to count the doors. The same is probably true for the trees and bushes on your property (that is, if there are more than four or five and less than 15). By searching mentally through the various localities, you can retrieve the images of the trees, doors, home, etc. The same process could be used to mentally scan the muscles in the body and recall each of them, the countries on a map, etc.

How do you use this process to memorize things that are not found naturally in a specific location? We create a mental image of what must be memorized existing in a specific location. Wollen, Weber, and Lowry (1972) evaluated the effect of having individuals create bizarre images of pairs of objects. Some of the research participants memorized the objects utilizing bizarre images that were pictorially prepared while others were

given images that showed the objects interacting in a nonbizarre way. For example, to match a piano and a cigar the piano was depicted laying on the top of the piano. The bizarre image showed the piano smoking the cigar. Contrary to preconceived notions about the long term memory of bizarre images, the bizarreness of the image created less retention than that of the control group of the experiment. This may not be as true when the images are self-determined.

Pegword Method

The pegword method involves memorizing a list of words that can be recalled readily and linking these words with the items that must be memorized. Some people memorize a list of activities in a story such as the following. First there is a lady, and then a man, together they make a baby, the doctor is next, he delivers a baby, he hands it to the nurse who wraps it in a blanket, and then gives it a bottle, and then the baby wets his pants, so he needs a diaper. In this case the list of items proceeds from the following: lady, man, baby, doctor, nurse, blanket, bottle, pants,and diaper. To remember a serial list of objects, you can match each of the items with the pegwords mentioned here. Then, when you need to retrieve the words, you merely recall the story and the visual images you have created between the

pairs. Another little rhyme that may assist you would be the nursery rhyme "Give a dog a bone". You can create visual images by recalling each of the changing parts of the verse(i.e. on my thumb, on my shoe, knee, door, hive, sticks, heaven, gate, spine) and again pairing the items to be learned with these objects.

Keyword Method

The third type of visual imagery is the keyword method which is recommended for creating visual images of things that are not concrete in nature. Instead of making an image of an abstract word, the student is asked to associate the word with a concrete word that sounds like it and to use this information to create the new images to recall.

In some classes students are required to recall such mundane sets of information as the fifty states or the countries of the world and their location on the map. How do we remember all of these? We have all learned the states and capitals and the countries and their capitals...but why do we forget them? They may not be lost but we may not have a way to retrieve them. How do we remember that the capital of Florida is Tallahassee using this approach? We could use as a key word for Florida, the word floor. We then visualize the floor. As a key word for Tallahasse we could use as a keyword or phrase, he "has a tail". Now we create the

visual image of a floor with a tail on it. The same process can be used to memorize other abstract information such as the names of individuals and their accomplishments.

VERBAL MEMORY STRATEGIES

Four verbal memory strategies will be discussed. They include rote verbal rehearsal, chaining, clustering, and first letter mnemonics.

Rote Rehearsal

Rote rehearsal involves repeating the items over and over in either silent or overt speech. This is probably the most used form of memory strategy. It is effective for us when we do not need to remember a large amount information and when it is not required over a long period of time. Examples would include a phone number or house number. We do not usually take the time to make a visual image. Instead we merely repeat the digits over and over, sometimes overtly and sometimes covertly, until we have time enough to dial them or find a paper on which to write them (Adams, 1976). Rehearsal may assist one on a temporary basis until the information can be filed in the long term memory. It does not, however, facilitate our ability to readily retrieve the information when other similar information is entered at a later time. It is

probably one of the least effective and most used strategies.

Chaining-Narrative Stories

Young and Gibson in 1962 originally recommended the creation of stories to retain serial lists of information. The strategy involves picking a critical meaningful word from each list and using these in a story. If it is essential that you remember them in order, you must put them into the story in order. Bower and Clark (1977) used very simple directions to instruct adults to use the procedures. The instructions were as follows:

> "Specifically, start with the first item and put it in a setting which will allow other items to be added to it. Then, add the other items to the story in the same order as the items appear. Make each story meaningful to yourself (p. 189)."

To recall the information they were instructed to restate the story to retrieve the information in the proper order. They found the students remembered from six to seven times as many items as the control group using other strategies.

Clustering

Clustering is another way of doing verbal or visual type of associating that may help one remember lists of items. You merely look for categories into which a number of the items will fall. This will assist you in recalling the items. You may look at the colors, the first initials, the parts of speech, their use, their textures, properties, locations, etc. Any relationships that can be found among the items to be learned will reduce the memory load as you will memorize the categories and use these to retrieve the specific items. By holding the classifications in memory you can retrieve the items to be memorized.

First Letter Mnemonic Strategies

This process is frequently used to memorize lists of items or steps in a process. The student identifies an important word in each statement or step. The words are placed in the correct sequence. The first letter from each word is isolated. These first letters are shuffled to see if a word can be created from them or a word that sounds similar to the spelling made by these letters. If a word can not be made, a sentence or phrase is created using the first letter or each of the key words. This is the process that has been used to memorize the planets in the mnemonic sentence, "My very educated mother just sent

us nine pizza pies". Each of the first letters corresponds to a planet in direct sequence from sun.

These seven strategies are relatively easy to learn. Each one is more appropriate for certain types of information to be memorized. They are not necessarily intuitive in nature and, therefore, educators should demonstrate their use and effectiveness.

College professors do their students a service when they provide examples of various memory strategies that can be used to memorize essential information in their specific courses. Students who are marginal because they have never learned the study skills of various memory strategies may become successful due to this direct instruction in an essential skill for college success. A class period devoted to"how to learn"what is presented may be a new focus for college instructors that will increase the level of retention of what transpires thereafter.

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